Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Ballfields Parcels at DoDHF Novato, CA

Collection Date: April 6, 2005

LDC Report Date: June 14, 2005

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level III & IV

Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K2502571

Sample Identification

TO63-R3-GW01-ER
TO63-R3-GW01
TO63-R3-GW01-Dup
TO63-R4-GW01**
TO63-R5-GW01
TO63-R3-GW01-FB
TO63-R2-GW01
TO63-R1-GW01
TO63-R3-GW01MS
TO63-R3-GW01MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

The review follows the Final Sampling and Analysis Plan for Preliminary Assessment/Site Investigation of Ballfields Parcels at DoDHF Novato, California, (March 23, 2005) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent NFESC Level IV review. NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs) with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
4/13/05	Methylene chloride	17.6	All samples in SDG K2502571	J (all detects) UJ (all non-detects)	A

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination (r^2) were greater than or equal to 0.990 .

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were greater than or equal to 0.05 as required.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

The percent difference (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

Samples TO63-R3-GW01 and TO63-R3-GW01-Dup were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	TO63-R3-GW01	TO63-R3-GW01-Dup	
trans-1,2-Dichloroethene	0.19	0.18	5
cis-1,2-Dichloroethene	6.5	6.3	3
Trichloroethene	0.28	0.27	4
Toluene	0.56	1.1	65
Bromomethane	0.50U	0.87	200

XVII. Field Blanks

Sample TO63-R3-GW01-FB was identified as a field blank. No volatile contaminants were found in this blank with the following exceptions:

Field Blank ID	Compound	Concentration (ug/L)
TO63-R3-GW01-FB	Acetone	5.2
	Chloroform	0.80
	Bromodichloromethane	0.51
	Toluene	0.59
	Dibromochloromethane	0.28

Sample TO63-R3-GW01-ER was identified as an equipment rinsate. No semivolatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Compound	Concentration (ug/L)
TO63-R3-GW01-ER	Acetone	4.4
	Chloroform	0.78
	Bromodichloromethane	0.50
	Toluene	1.3
	Dibromochloromethane	0.25

Ballfields Parcels at DoDHF Novato, CA
Volatiles - Data Qualification Summary - SDG K2502571

SDG	Sample	Compound	Flag	A or P	Reason
K2502571	TO63-R3-GW01-ER TO63-R3-GW01 TO63-R3-GW01-Dup TO63-R4-GW01** TO63-R5-GW01 TO63-R3-GW01-FB TO63-R2-GW01 TO63-R1-GW01	Methylene chloride	J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)

Ballfields Parcels at DoDHF Novato, CA
Volatiles - Laboratory Blank Data Qualification Summary - SDG K2502571

No Sample Data Qualified in this SDG

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R3-GW01-ER
Lab Code: K2502571-001

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q		MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U		0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Chloromethane	ND	U		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Vinyl Chloride	ND	U		0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Bromomethane	ND	U		0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND	U		0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane	ND	U		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichlorotrifluoroethane	ND	U		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Acetone	**4.4**	J		20	4.1	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethene	ND	U		0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Methyl Acetate	ND	U		1.0	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND	U		0.50	0.16	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether	ND	U		2.0	0.25	1	04/20/05	04/20/05	KWG0506414	
Methylene Chloride	ND	U	UJ	2.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Methyl tert-Butyl Ether	ND	U		0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene	ND	U		0.50	0.15	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethane	ND	U		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND	U		20	2.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	ND	U		0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Chloroform	**0.78**			0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND	U		0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND	U		1.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Carbon Tetrachloride	ND	U		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloroethane (EDC)	ND	U		0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Benzene	ND	U		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichloroethene (TCE)	ND	U		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND	U		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Bromodichloromethane	**0.50**			0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Methylcyclohexane	ND	U		1.0	0.19	1	04/20/05	04/20/05	KWG0506414	
2-Hexanone	ND	U		20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND	U		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Toluene	**1.3**			0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND	U		0.50	0.090	1	04/20/05	04/20/05	KWG0506414	
1,1,2-Trichloroethane	ND	U		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	

Comments:

4/19/05

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R3-GW01-ER
Lab Code: K2502571-001

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Methyl-2-pentanone (MIBK)	ND	U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	**0.25**	J	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND	U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
o-Xylene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND	U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND	U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND	U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND	U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND	U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND	U	2.0	0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	108	80-119	04/20/05	Acceptable
Toluene-d8	109	83-113	04/20/05	Acceptable
4-Bromofluorobenzene	99	72-114	04/20/05	Acceptable

4/19/05

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R3-GW01
Lab Code: K2502571-002

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Chloromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Vinyl Chloride	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Bromomethane	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND	U	0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichlorotrifluoroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Acetone	ND	U	20	4.1	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Methyl Acetate	ND	U	1.0	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND	U	0.50	0.16	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether	ND	U	2.0	0.25	1	04/20/05	04/20/05	KWG0506414	
Methylene Chloride	ND	U UJ	2.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Methyl tert-Butyl Ether	ND	U	0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene	**0.19**	J	0.50	0.15	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND	U	20	2.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	**6.5**		0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Chloroform	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND	U	1.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Carbon Tetrachloride	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Benzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichloroethene (TCE)	**0.28**	J	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Bromodichloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Methylcyclohexane	ND	U	1.0	0.19	1	04/20/05	04/20/05	KWG0506414	
2-Hexanone	ND	U	20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Toluene	**0.56**		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND	U	0.50	0.090	1	04/20/05	04/20/05	KWG0506414	
1,1,2-Trichloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	

Comments:

6/14/05

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R3-GW01
Lab Code: K2502571-002

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Methyl-2-pentanone (MIBK)	ND	U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND	U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
o-Xylene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND	U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND	U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND	U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND	U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND	U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND	U	2.0	0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	107	80-119	04/20/05	Acceptable
Toluene-d8	108	83-113	04/20/05	Acceptable
4-Bromofluorobenzene	99	72-114	04/20/05	Acceptable

Comments:

4/19/05

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R3-GW01-DUP
Lab Code: K2502571-003

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Chloromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Vinyl Chloride	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Bromomethane	**0.87**		0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND	U	0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichlorotrifluoroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Acetone	ND	U	20	4.1	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Methyl Acetate	ND	U	1.0	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND	U	0.50	0.16	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether	ND	U	2.0	0.25	1	04/20/05	04/20/05	KWG0506414	
Methylene Chloride	ND	U UJ	2.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Methyl tert-Butyl Ether	ND	U	0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene	**0.18**	J	0.50	0.15	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND	U	20	2.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	**6.3**		0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Chloroform	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND	U	1.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Carbon Tetrachloride	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Benzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichloroethene (TCE)	**0.27**	J	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Bromodichloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Methylcyclohexane	ND	U	1.0	0.19	1	04/20/05	04/20/05	KWG0506414	
2-Hexanone	ND	U	20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Toluene	**1.1**		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND	U	0.50	0.090	1	04/20/05	04/20/05	KWG0506414	
1,1,2-Trichloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	

Comments:

6/19/05

Client:	Battelle Memorial Institute	**Service Request:**	K2502571
Project:	Novato Ballfields/G486063	**Date Collected:**	04/07/2005
Sample Matrix:	Water	**Date Received:**	04/08/2005

Volatile Organic Compounds

Sample Name:	TO63-R3-GW01-DUP	**Units:**	ug/L
Lab Code:	K2502571-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Methyl-2-pentanone (MIBK)	ND	U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND	U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
o-Xylene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND	U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND	U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND	U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND	U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND	U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND	U	2.0	0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	108	80-119	04/20/05	Acceptable
Toluene-d8	110	83-113	04/20/05	Acceptable
4-Bromofluorobenzene	102	72-114	04/20/05	Acceptable

Comments:

6/19/05

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R4-GW01
Lab Code: K2502571-004

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Chloromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Vinyl Chloride	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Bromomethane	**0.22**	J	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND	U	0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichlorotrifluoroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Acetone	ND	U	20	4.1	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Methyl Acetate	ND	U	1.0	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND	U	0.50	0.16	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether	ND	U	2.0	0.25	1	04/20/05	04/20/05	KWG0506414	
Methylene Chloride	ND	U UJ	2.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Methyl tert-Butyl Ether	ND	U	0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene	ND	U	0.50	0.15	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND	U	20	2.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Chloroform	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND	U	1.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Carbon Tetrachloride	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Benzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichloroethene (TCE)	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Bromodichloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Methylcyclohexane	ND	U	1.0	0.19	1	04/20/05	04/20/05	KWG0506414	
2-Hexanone	ND	U	20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Toluene	**0.53**		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND	U	0.50	0.090	1	04/20/05	04/20/05	KWG0506414	
1,1,2-Trichloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	

Comments:

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Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R4-GW01
Lab Code: K2502571-004

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Methyl-2-pentanone (MIBK)	ND	U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND	U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
o-Xylene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND	U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND	U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND	U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND	U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND	U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND	U	2.0	0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	106	80-119	04/20/05	Acceptable
Toluene-d8	107	83-113	04/20/05	Acceptable
4-Bromofluorobenzene	100	72-114	04/20/05	Acceptable

Comments:

6/19/05

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R5-GW01
Lab Code: K2502571-005

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Chloromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Vinyl Chloride	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Bromomethane	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND	U	0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichlorotrifluoroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Acetone	ND	U	20	4.1	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Methyl Acetate	ND	U	1.0	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND	U	0.50	0.16	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether	ND	U	2.0	0.25	1	04/20/05	04/20/05	KWG0506414	
Methylene Chloride	ND	U UJ	2.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Methyl tert-Butyl Ether	ND	U	0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene	ND	U	0.50	0.15	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND	U	20	2.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Chloroform	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND	U	1.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Carbon Tetrachloride	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Benzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichloroethene (TCE)	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Bromodichloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Methylcyclohexane	ND	U	1.0	0.19	1	04/20/05	04/20/05	KWG0506414	
2-Hexanone	ND	U	20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Toluene	**0.46**	J	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND	U	0.50	0.090	1	04/20/05	04/20/05	KWG0506414	
1,1,2-Trichloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	

Comments:

6/19/05

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R5-GW01
Lab Code: K2502571-005

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Methyl-2-pentanone (MIBK)	ND	U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND	U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
o-Xylene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND	U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND	U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND	U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	**0.11**	J	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND	U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND	U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND	U	2.0	0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	106	80-119	04/20/05	Acceptable
Toluene-d8	108	83-113	04/20/05	Acceptable
4-Bromofluorobenzene	99	72-114	04/20/05	Acceptable

Comments:

4/19/05

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R3-GW01-FB
Lab Code: K2502571-006

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Chloromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Vinyl Chloride	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Bromomethane	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND	U	0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichlorotrifluoroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Acetone	**5.2**	J	20	4.1	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Methyl Acetate	ND	U	1.0	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND	U	0.50	0.16	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether	ND	U	2.0	0.25	1	04/20/05	04/20/05	KWG0506414	
Methylene Chloride	ND	U UJ	2.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Methyl tert-Butyl Ether	ND	U	0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene	ND	U	0.50	0.15	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND	U	20	2.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Chloroform	**0.80**		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND	U	1.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Carbon Tetrachloride	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Benzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichloroethene (TCE)	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Bromodichloromethane	**0.51**		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Methylcyclohexane	ND	U	1.0	0.19	1	04/20/05	04/20/05	KWG0506414	
2-Hexanone	ND	U	20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Toluene	**0.59**		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND	U	0.50	0.090	1	04/20/05	04/20/05	KWG0506414	
1,1,2-Trichloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	

Comments:

6/14/05

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R3-GW01-FB
Lab Code: K2502571-006

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Methyl-2-pentanone (MIBK)	ND	U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	**0.28**	J	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND	U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
o-Xylene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND	U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND	U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND	U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND	U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND	U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND	U	2.0	0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	108	80-119	04/20/05	Acceptable
Toluene-d8	108	83-113	04/20/05	Acceptable
4-Bromofluorobenzene	100	72-114	04/20/05	Acceptable

Comments:

4/19/05

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R2-GW01
Lab Code: K2502571-007

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Chloromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Vinyl Chloride	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Bromomethane	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND	U	0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichlorotrifluoroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Acetone	ND	U	20	4.1	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Methyl Acetate	ND	U	1.0	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND	U	0.50	0.16	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether	ND	U	2.0	0.25	1	04/20/05	04/20/05	KWG0506414	
Methylene Chloride	ND	U UJ	2.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Methyl tert-Butyl Ether	ND	U	0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene	ND	U	0.50	0.15	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND	U	20	2.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Chloroform	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND	U	1.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Carbon Tetrachloride	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Benzene	**0.15**	J	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichloroethene (TCE)	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Bromodichloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Methylcyclohexane	ND	U	1.0	0.19	1	04/20/05	04/20/05	KWG0506414	
2-Hexanone	ND	U	20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Toluene	**0.82**		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND	U	0.50	0.090	1	04/20/05	04/20/05	KWG0506414	
1,1,2-Trichloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	

Comments:

6/14/05

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R2-GW01
Lab Code: K2502571-007

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Methyl-2-pentanone (MIBK)	ND	U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND	U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
o-Xylene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND	U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND	U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND	U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND	U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND	U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND	U	2.0	0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	107	80-119	04/20/05	Acceptable
Toluene-d8	107	83-113	04/20/05	Acceptable
4-Bromofluorobenzene	101	72-114	04/20/05	Acceptable

Comments:

4/19/05

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R1-GW01
Lab Code: K2502571-008

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Chloromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Vinyl Chloride	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Bromomethane	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND	U	0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichlorotrifluoroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Acetone	ND	U	20	4.1	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Methyl Acetate	ND	U	1.0	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND	U	0.50	0.16	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether	ND	U	2.0	0.25	1	04/20/05	04/20/05	KWG0506414	
Methylene Chloride	ND	U UJ	2.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Methyl tert-Butyl Ether	ND	U	0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene	ND	U	0.50	0.15	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND	U	20	2.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Chloroform	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND	U	1.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Carbon Tetrachloride	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Benzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichloroethene (TCE)	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Bromodichloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Methylcyclohexane	ND	U	1.0	0.19	1	04/20/05	04/20/05	KWG0506414	
2-Hexanone	ND	U	20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Toluene	**0.86**		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND	U	0.50	0.090	1	04/20/05	04/20/05	KWG0506414	
1,1,2-Trichloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	

Comments:

6/19/05

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R1-GW01
Lab Code: K2502571-008

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Methyl-2-pentanone (MIBK)	ND	U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND	U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
o-Xylene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND	U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND	U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND	U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND	U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND	U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND	U	2.0	0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	107	80-119	04/20/05	Acceptable
Toluene-d8	108	83-113	04/20/05	Acceptable
4-Bromofluorobenzene	99	72-114	04/20/05	Acceptable

Comments:

LDC #: 13575D1

SDG #: K2502571

Laboratory: Columbia Analytical Services

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6/14/05

Page: 1 of 1

Reviewer: T

2nd Reviewer: Q

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/6/05
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	%RSD ≤ 30/15. SPCCs
IV.	Continuing calibration	A	%D ≤ 20. ICV ≤ %D
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	N	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 2+3
XVII.	Field blanks	SW	ER = 1. FB = 6.

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

W + 20s

1	TO63-R3-GW01-ER	11	HW605644-4	21		31	
2	TO63-R3-GW01	12		22		32	
3	TO63-R3-GW01-Dup	13		23		33	
4	TO63-R4-GW01**	14		24		34	
5	TO63-R5-GW01	15		25		35	
6	TO63-R3-GW01-FB	16		26		36	
7	TO63-R2-GW01	17		27		37	
8	TO63-R1-GW01	18		28		38	
9	TO63-R3-GW01MS	19		29		39	
10	TO63-R3-GW01MSD	20		30		40	

LDC #: 12575D1
SDG #: K250257

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: 9

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation?	✓			
Did the initial calibration meet the curve fit acceptance criteria of $\geq$ 0.990?	✓			
Were all percent relative standard deviations (%RSD) $\leq$ 30% and relative response factors (RRF) $\geq$ 0.05?		✓		
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) $\leq$ 25% and relative response factors (RRF) $\geq$ 0.05?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			

LDC #: 13573B1
SDG #: K2502571

VALIDATION FINDINGS CHECKLIST

Reviewer: 4
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		✓		
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene ✓	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene ✓	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL.
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM.
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNN.
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene ✓	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

LDC #: 13575O1
SDG #: K3502571

VALIDATION FINDINGS WORKSHEET
Initial Calibration

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- (Y) N N/A — Did the laboratory perform a 5 point calibration prior to sample analysis?
- (Y) N N/A — Were percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCC's and SPCC's?
- Y (N) N/A — Was a curve fit used for evaluation? If yes, what was the acceptance criteria used for evaluation?__________
- Y N (N/A) — Did the initial calibration meet the acceptance criteria?
- Y (N) N/A — Were all %RSDs and RRFs within the validation criteria of ≤30 %RSD and ≥0.05 RRF ?

#	Date	Standard ID	Compound	Finding %RSD (Limit: ≤30.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	4/13/05	ICAL	E	17.6 (≤15)		All + Blk	J/UJ/A

INICAL.1SB

LDC #: 13575D1
SDG #: K2502ST

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: 9
2nd reviewer: 9

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD
	2	3	
PTP	0.19	0.18	5
QQQ	6.5	6.3	3
S	0.28	0.27	4
CC	0.56	1.1	65
B	0.50U	0.8T	200

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

LDC #: 13575D1
SDG #: K20025T1

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: Q
2nd reviewer: JV

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Sample: _____/_____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units (ug/L)
F	4.4 J
K	0.78
P	0.50
CC	1.3
T	0.25

Sample: 6 Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units (ug/L)
F	5.2 J
K	0.80
P	0.51 J
CC	0.59
T	0.28

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units ( )

LDC #: 135501
SDG #: 580257

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: 9

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs
X = Mean of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (10 std)	Recalculated RRF (10 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	10A1		Methylene chloride (1st internal standard)	0.272	0.272	0.292	0.292	17.6	17.7
			~~Trichlorethene~~ EE (2nd internal standard)	0.495	0.495	0.485	0.485	4.5	4.5
			~~Toluene~~ MMM (3rd internal standard)	0.568	0.568	0.547	0.547	13.8	13.7
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichlorethere (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 13575D1
SDG #: K50257

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: 9

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	0420F003	4/20/05	Methylene chloride (1st internal standard)	0.292	0.275	0.275	6	6
			~~Trichlorethene~~ EE (2nd internal standard)	0.485	0.497	0.497	2	2
			~~Toluene~~ MMM (3rd internal standard)	0.547	0.506	0.506	7	7
2			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
3			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
4			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 13575D1
SDG #: K2502571

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 4

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8	10	10.66	107	107	0
Bromofluorobenzene	↓	10.04	100	100	0
1,2-Dichloroethane-d4			~~106~~		
Dibromofluoromethane	10	10.62	106	106	0

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

LDC #: 13575D1
SDG #: K25025T1

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: [signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentration

RPD = I MSC - MSDC I * 2/(MSC + MSDC) MSC = Matrix spike percent recovery; MSDC = Matrix spike duplicate percent recovery

MS/MSD sample: 9/10

Compound	Spike Added (µg/L)		Sample Concentration (µg/L)	Spiked Sample Concentration (µg/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	10	10	ND	11.0	11.3	110	110	113	113	3	3
Trichloroethene	↓	↓	0.28	10.5	10.5	102	102	102	102	0	0
Benzene	↓	↓	ND	9.83	10.1	98	98	101	101	2	3
Toluene	↓	↓	0.56	10.4	10.6	99	99	100	100	2	2
Chlorobenzene	↓	↓	ND	9.68	9.83	97	97	98	98	2	2

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 13575D1
SDG #: K2502ST1

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: 9

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration; SA = Spike added

RPD = | LCS - LCSD | * 2/(LCS + LCSD) LCS = Laboraotry control sample percent recovery LCSD = Laboratory control sample duplicate percent recovery

LCS ID: KWG0506414-3

Compound	Spike Added (µg/L)		Spiked Sample Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	10	NA	10.2	NA	102	102				
Trichloroethene			9.81		98	98				
Benzene			9.32		93	93				
Toluene			9.57		96	96				
Chlorobenzene			9.54		95	95				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 135750I
SDG #: KX50257I

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: 9

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 4 , cc :

Conc. = (403975)(10)(1) / (3353287)(0.585)( )( )

= 0.530 ug/L

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification